REMARKS

In view of the election of claim 2 in response to the restriction requirement, claims 1 and 3 have been cancelled, without prejudice to the possibility of filing a divisional application directed to one or both of those claims.

Claim 2 was rejected under 35 U.S.C. §103(a) as being unpatentable over Masson et al in view of Werner et al.

Claim 2 has been amended to describe in more detail the operation of the tubing system that occurs by controlling switching of the switching valve of the gas volume exchanger. As explained in the introductory portion of the present specification, although it is known to remove carbon dioxide from exhaled breathing gas in a breathing system by the use of a carbon dioxide filter or a carbon dioxide absorber, the use of such a carbon dioxide filter or absorber in combination with an anesthetic absorber/desorber is problematical, because each of these units introduces a certain fixed amount of breathing resistance into the system. The breathing resistance introduced by one of these units may still be sufficiently low so as not to pose a significant discomfort or extra effort on the part of the patient during breathing through the system. For many patients, however, the combined (increased) breathing resistance that is presented when both a carbon dioxide filter or absorber, and an anesthetic absorber/desorber are present in a system, makes breathing through such a system difficult or laborious.

The subject matter disclosed and claimed in the present application allows the use of an anesthetic absorber/desorber without the necessity of using a carbon dioxide filter or absorber, but nevertheless flushes the anesthetic absorber/desorber with carbon dioxide-free gas. The added resistance presented by a carbon dioxide

filter or absorber thus is not present in the system, or at least is not present in the part of the system that directly interacts with the patient's airways.

This is accomplished in the subject matter disclosed and claimed in the present application by the recognition that, in a "dead space" of the system, there will remain an amount of gas that has not interacted with the lungs of a patient during inspiration, and thus is carbon dioxide-free. The gas exchanger in the subject matter of the present application is operated (switched) to isolate or trap this carbon dioxide-free volume of gas in a first chamber at a beginning of expiration, while allowing a remainder of the expiration gas to proceed through a second chamber. At a later part of the expiration phase, preferably near an end thereof, the gas exchanger is again switched so that the previously isolated volume of carbon dioxide-free gas is permitted to communicate with the anesthetic absorber/desorber. This volume of carbon dioxide-free gas is then available, during the next-successive inspiration, to flush the anesthetic absorber/desorber of carbon dioxide.

As the basis for rejecting claim 2 under 35 U.S.C. §103(a), the Examiner stated the Masson et al reference discloses an anesthetic system comprising all of the limitations recited in claim 2, with the exception of a unit for adsorption and desorption of a gaseous anesthetic. The Examiner relied on the Werner et al reference as teaching that such a unit for adsorption and desorption of gaseous anesthetic was known at the time the invention was made. The Examiner stated it would have been obvious to a person of ordinary skill at the time the invention was made to modify the apparatus of Masson et al by substituting one particular filter with the adsorption filter of Werner et al.

Applicant submits that the modified combination of Masson et al and Werner et al proposed by the Examiner would not and could not result in a structure as set forth in amended claim 2. If the anesthetic adsorption/desorption unit disclosed in Werner et al were substituted for the carbon dioxide absorber in Masson et al, this would merely result in anesthetic being absorbed, rather than carbon dioxide, but the problem of carbon dioxide adsorption still would exist, since the carbon dioxide absorber would have been replaced by an anesthetic absorber. Neither of the Masson et al or Werner et al references discloses or suggests a solution to the problem of avoiding carbon dioxide contamination of an anesthetic absorber/desorber without the use of an additional carbon dioxide absorber or filter, and thus without the additional breathing resistance represented by such an additional filter or absorber.

Moreover, even if the combination proposed by the Examiner were made, this still would not result in any exchange of gases or gas volume. The only embodiment in Masson et al that might be considered as having two chambers is the embodiment in Figure 1, wherein the line formed by the conduits 26 and 30 is present in addition to the branch conduit 34. As described in paragraph [0034] of Masson et al, however, the conduit 34 merely serves as a bypass conduit when it is desired to change the filter container between the conduits 26 and 30. When the filter is operational, there is no flow at all through the bypass conduit 34, and when the filter is non-operational, there is no flow at all through the line formed by the conduits 26 and 30. Therefore, gas flow between these two paths is alternating, and mutually exclusive, but there is no "exchange" of gas or a gas volume that takes place in this arrangement.

Because neither of the Masson et al or Werner et al references provides a solution to the aforementioned breathing resistance problem, and since the modified

combination proposed by the Examiner does not and cannot operate in the manner set forth in amended claim 2, the subject matter of claim 2 would not have been obvious to a person of ordinary skill in the field of breathing assistance device design under the provisions of 35 U.S.C. §103(a). Claim 2 is therefore submitted to be in condition for allowance, and reconsideration of the application is respectfully requested.

Submitted by,

Steven H. Noll (Reg. 28,982)

Schiff, Hardin LLP
CUSTOMER NO. 26574
Patent Department
6600 Sears Tower
233 South Wacker Drive
Chicago, Illinois 60606
Telephone: 312/258-5790
Attorneys for Applicant.

CERTIFICATE OF MAILING

I hereby certify that this correspondence is being deposited with the United States Postal Service as First Class mail in an envelope addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450 on October 6, 2004.

Steven H. Noll

STEVEN H. NOLL

CH1\ 4187467.1